DOCUMENT RESUME

ED 221 762 CE 034 183

AUTHOR	Hill, Pamela
TITLE	Lubrication System 1. Check and Change the Engine Oil. Student Manual. Small Engine Repair Series. First Edition.
INSTITUTION	East Texas State Univ., Commerce. Occupational Curriculum Lab.
SPONS AGENCY	Texas Education Agency, Austin. Dept. of Occupational Education and Technology.
PUB DATE	81
NOTE	32p.; For related documents see ED 146 392 and CE 034 181-188.
AVAILABLE FROM	Occupational Curriculum Laboratory, East Texas State University, Commerce, TX 75428.
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Check Lists; *Disabilities; *Engines; *Equipment Utilization; Industrial Arts; Instructional Materials; Job Skills; *Lubricants; Rating Scales; *Repair; Secondary Education; Trade and Industrial Education
IDENTIFIERS	Lubrication Systems; *Oil Changes; *Small Engine Mechanics

ABSTRACT

This student manual on checking and changing the engine oil is the second of three in an instructional package on the lubrication system in the Small Engine Repair Series for handicapped students. The stated purpose for the booklet is to help students learn what tools and equipment to use and all the steps of the job. Informative material and photographs are provided on tools and equipment for checking and changing the engine oil and steps in the process. A rating scale and chart are included for evaluation of student progress. (YLB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

CE 034183 - ED227627

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY

D Bristow

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

STUDENT MANUAL 1

CHECK AND CHANGE THE ENGINE OIL

Prepared by
Pamela Hill

MATERIALS DEVELOPED AND DISTRIBUTED BY
OCCUPATIONAL CURRICULUM LABORATORY
EAST TEXAS STATE UNIVERSITY
COMMERCE, TEXAS 75428

IN COOPERATION WITH
OCCUPATIONAL EDUCATION AND TECHNOLOGY
TEXAS EDUCATION AGENCY
AUSTIN, TEXAS 78701

FIRST EDITION
1981

Frances Hyatt
EDITOR

Bob Norsworthy
ART DIRECTOR

Brand names, company names, trademarks, or other identifying symbols appearing in the text are used to clarify and identify and do not constitute a recommendation or endorsement.

OCCUPATIONAL
CURRICULUM
LABORATORY

ETSU an Equal Opportunity University complies with all federal requirements prohibiting discriminatory activities

WHAT YOU WILL FIND IN THIS BOOKLET

The point of this booklet ..... Page 1

Tools and equipment for check and change the engine oil ..... Page 2

Steps for check and change the engine oil ..... Page 3

Can you check and change the engine oil? ..... Page 24

COUGH!
COUGH!

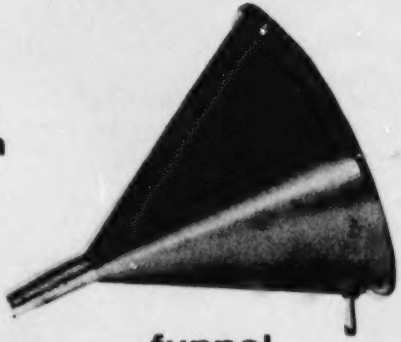
THE POINT OF THIS BOOKLET

As a small engine mechanic, you may have to check and change the engine oil on a small gas engine. This booklet will help you learn what tools and equipment to use and all the steps of this job.

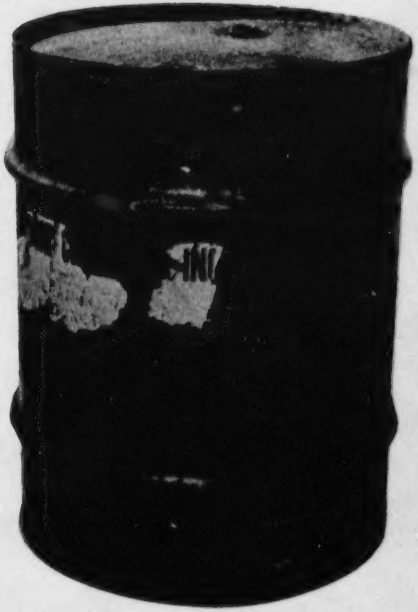
As you practice these steps on a real engine, you and your teacher can rate your progress on a chart on pages 25-26. Don't forget to follow the safety and good work habits that you have learned.

TOOLS AND EQUIPMENT:

1/2" open-end wrench



funnel



used oil container

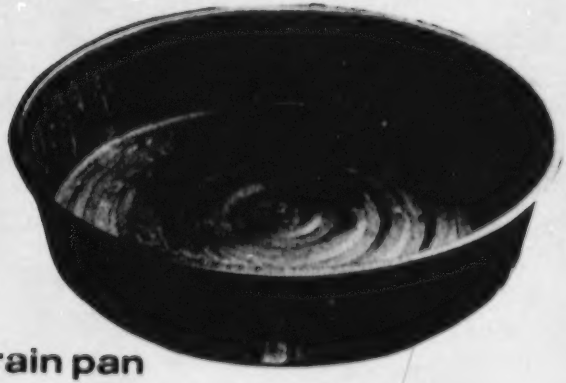
2 or 3 clean shop towels

8

spark plug socket and ratchet

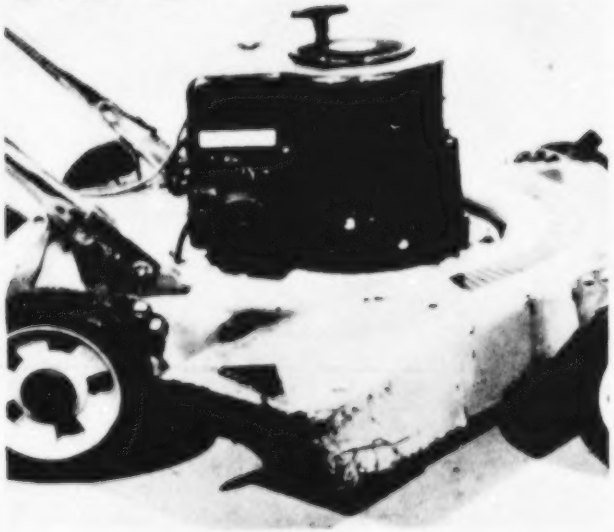
oil spout

2 cans of motor oil

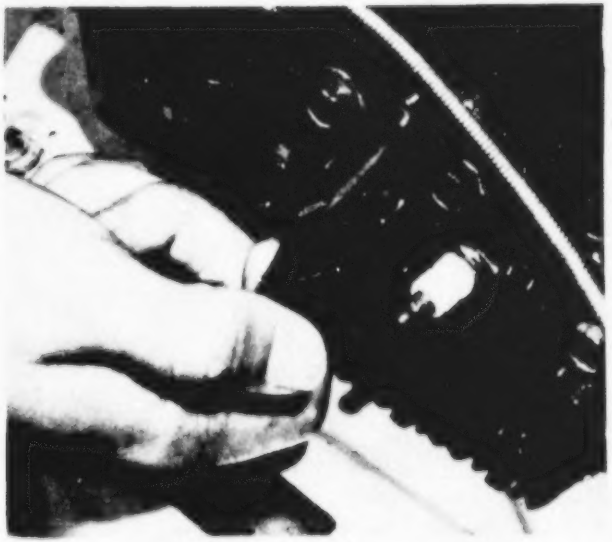


drain pan

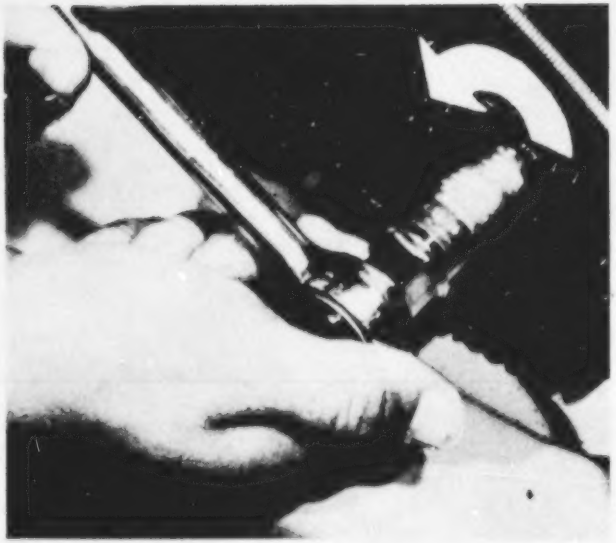
STEPS:



1. Move the lawnmower to level ground so that you will get a correct oil level measure.



2. Pull off the spark plug wire.

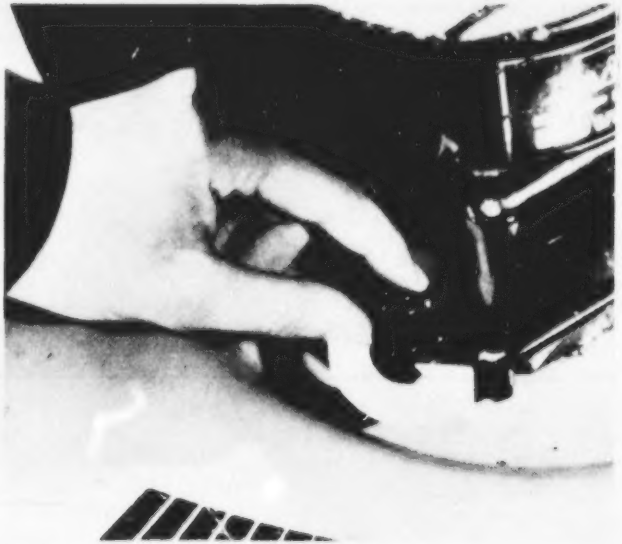


3. With a spark plug socket and ratchet, remove the spark plug from the engine.

   CAUTION: Always use the correct tool for removing the spark plug because the plug could easily break.

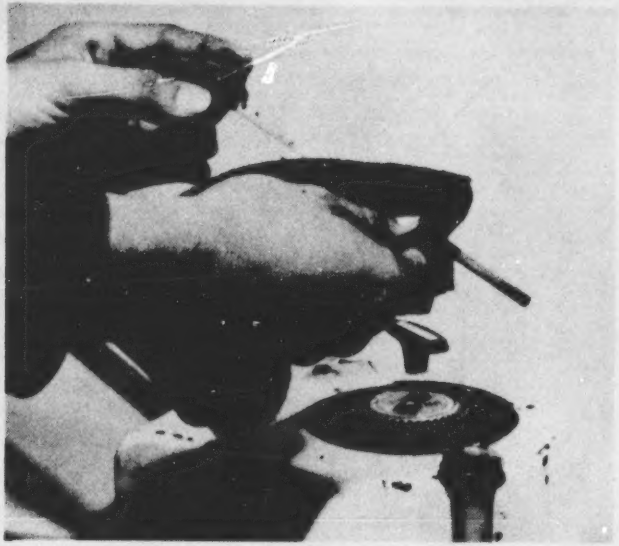
4. Wipe off the dirt from around the oil-fill plug with a shop towel.

   CAUTION: This will help keep dirt from falling into the crankcase when the plug is off.

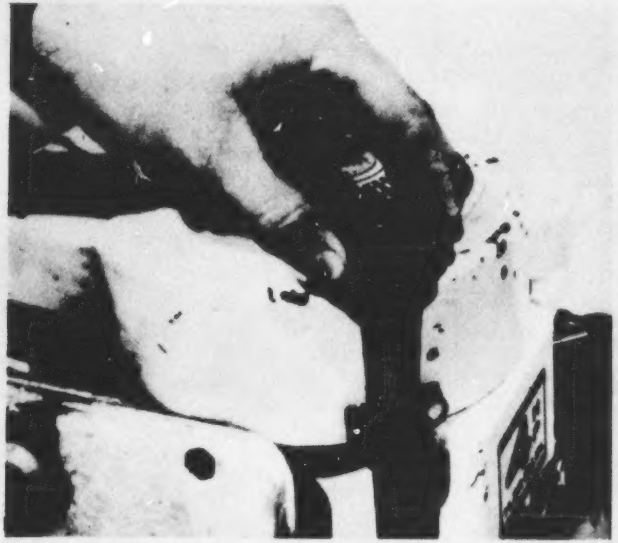


5. Unscrew the oil-fill plug.

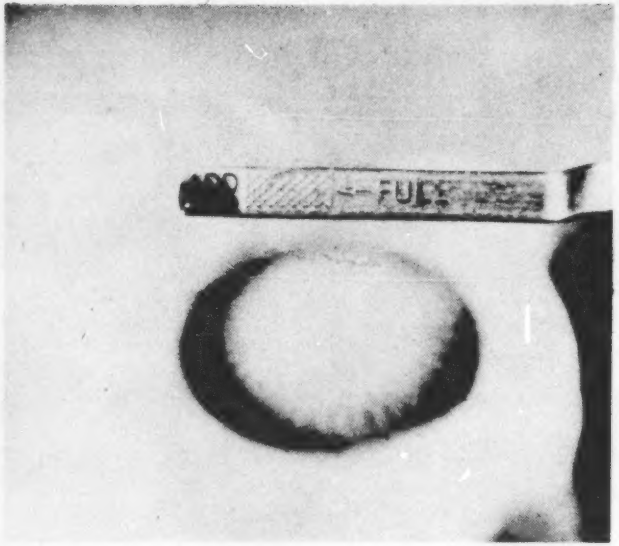
6. If the plug has a dipstick on it, take the dipstick out of the crankcase.



7. To get a correct oil level measure, wipe the dipstick with a clean shop towel.

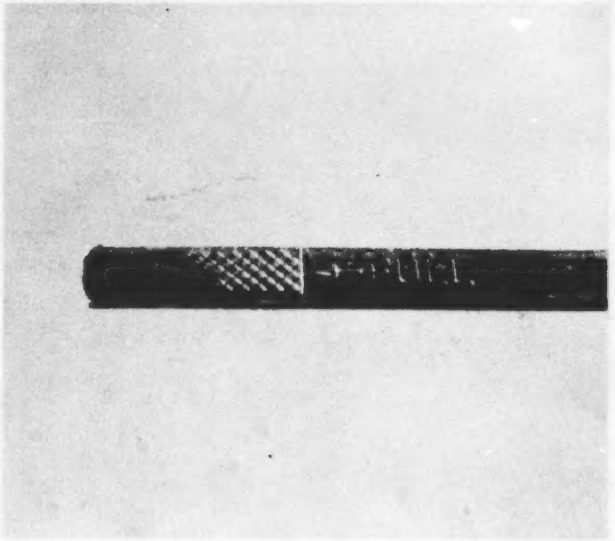


8. Put the dipstick back into the oil-fill hole. Do not screw or snap on the plug.

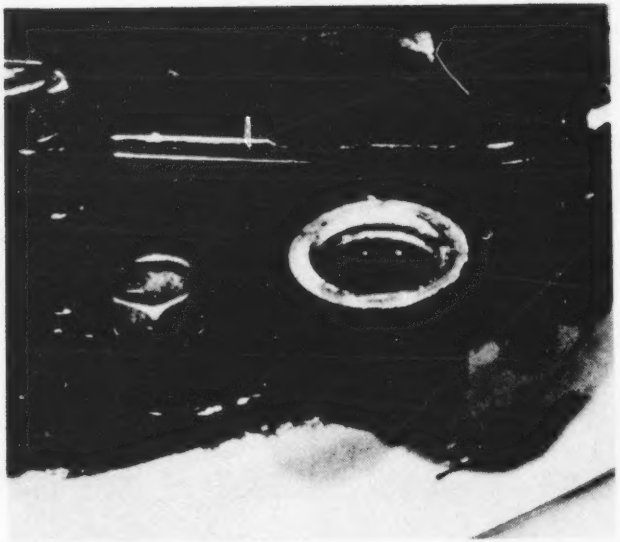


9. Again take out the dipstick and look at the oil on it. The oil should be between the "Full" and "Add" marks on the dipstick.

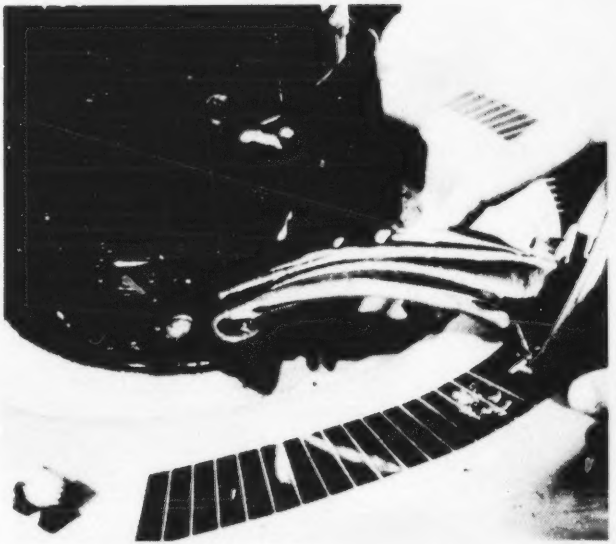
   NOTE: On this dipstick, the oil is *below* the "Add" mark.



10. Check for dirty oil. If the oil is dirty, then its color will be dark. There may also be small pieces of dirt or sludge in the oil.



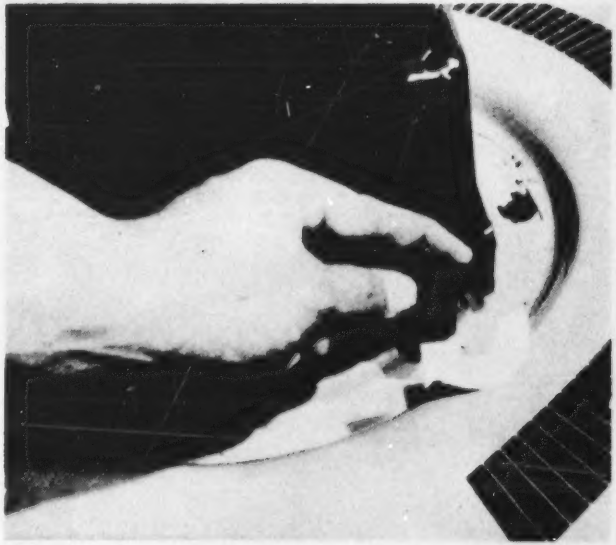
11. If the engine does not have a dipstick, measure the oil level by looking in the fill hole to see if the oil comes to the top of the threads.



NOTE: If the oil is dirty or the engine has been run for about 25 hours since the last oil change, you will want to change the engine oil.

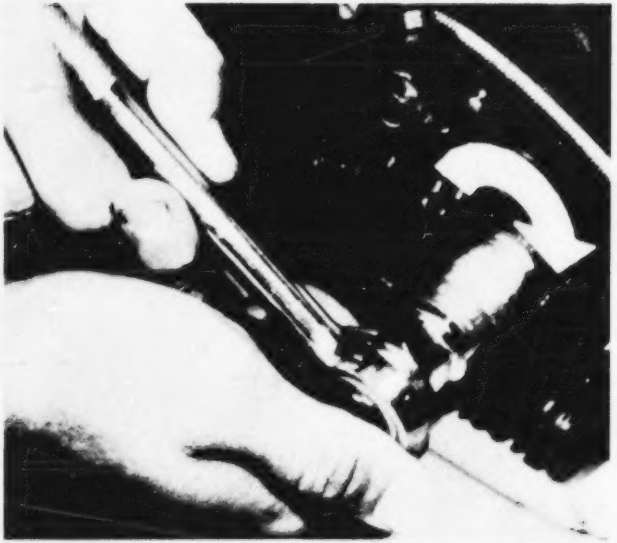
MODEL
TYPE
CODE
READ INSTRUCTION BOOKLET BEFORE STARTING ENGINE.
OIL: SUMMER S.A.E. 30 WINTER S.A.E. 5W-20 GRADE
"MS," "SC," OR "SD".
CLEAN AND RE-OIL AIR CLEANER ELEMENT REGULARLY

12. Before changing the oil, check the engine nameplate or an oil chart to see what type and grade motor oil to put into the crankcase.

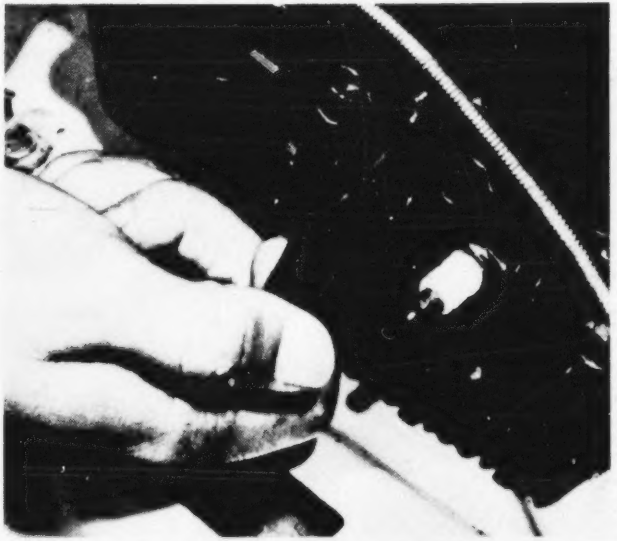


13. Replace the oil-fill plug snugly onto the fill hole.

CAUTION: This will keep dirt from getting into the crankcase, and oil from coming out of the fill hole when the engine is started.



14. Replace the spark plug. . .

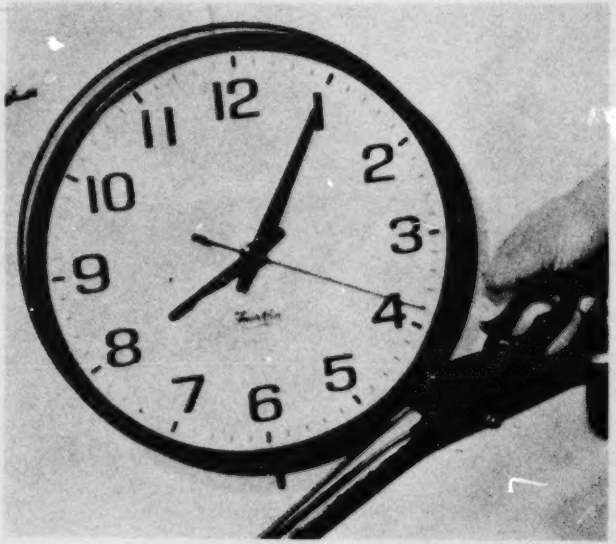


15. and spark plug wire so that the engine can be started.

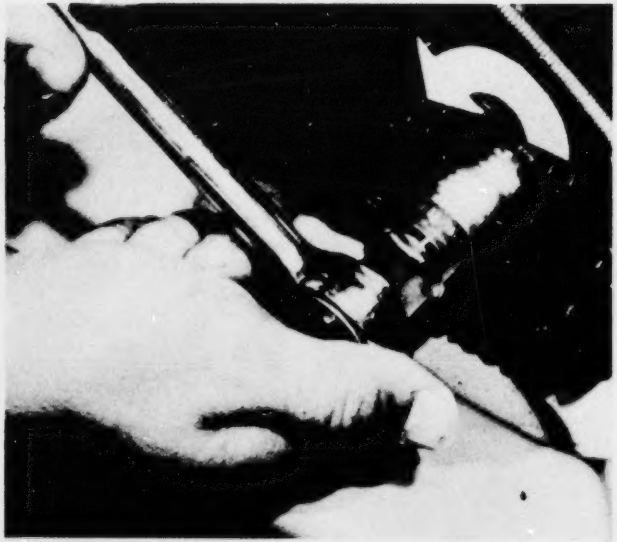
17

16. Crank the engine. Let it run for 5 minutes because the oil should be hot so that it will easily drain from the sump.

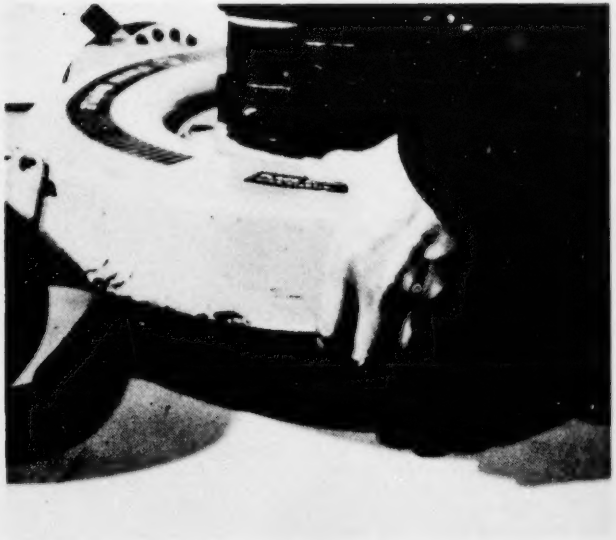
SAFETY TIP: A running engine should not be left alone.



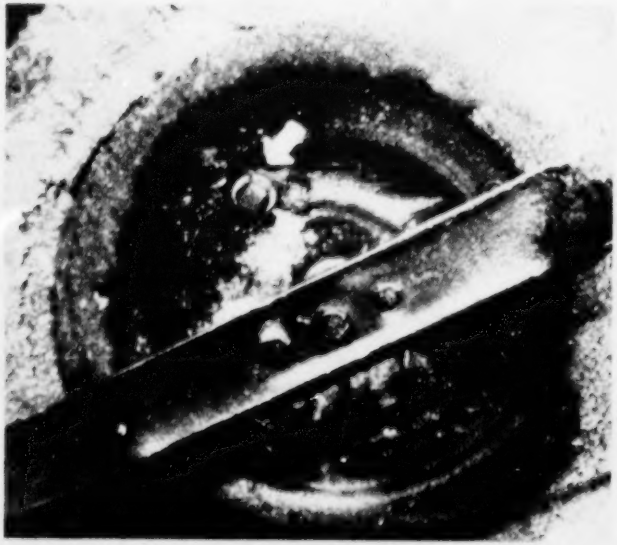
17. When 5 minutes are up, stop the engine.



18. Remove the spark plug wire and spark plug.



19. If the drain plug is under the engine, lift the lawnmower on the gas tank side. This will keep the gas tank cap from dripping gasoline.

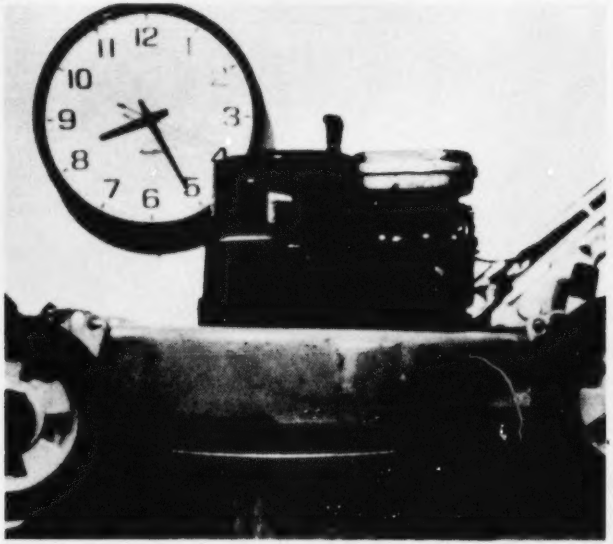


20. Find the oil drain plug on the oil sump.

21. Wipe away the dirt around the drain plug with a shop towel.

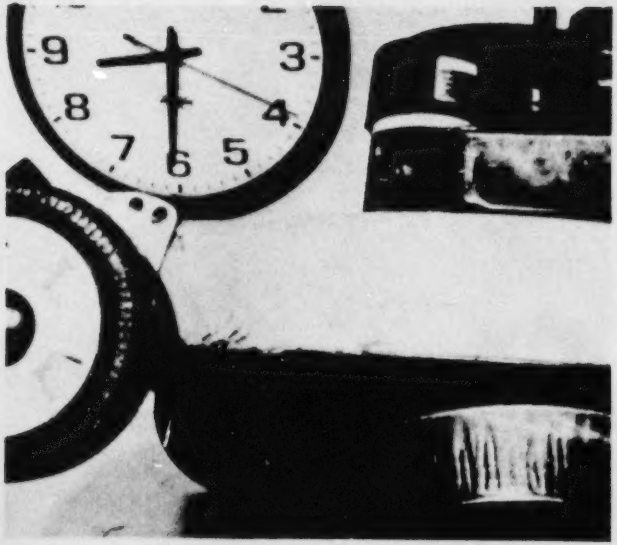
22. Using a 1/2" open-end wrench, unscrew the drain plug.

CAUTION: Always use the correct tool to remove the drain plug, because a tool like pliers will bend the plug out of shape.

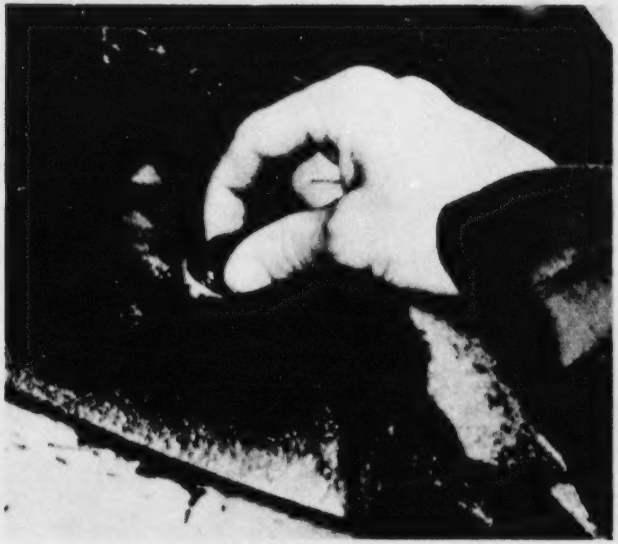


23. Place a drain pan under the drain plug and lower the engine on top of the pan.

NOTE: The oil will then drain out of the sump and into the pan. This will take about 5 minutes.

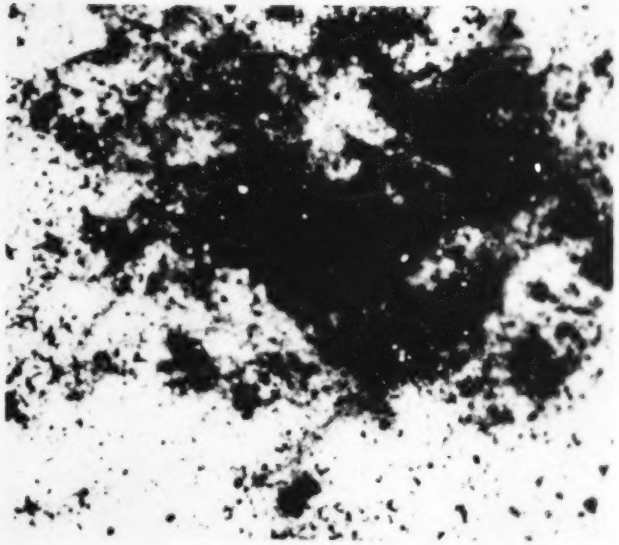


24. After 5 minutes, remove the drain pan with the dirty oil in it.

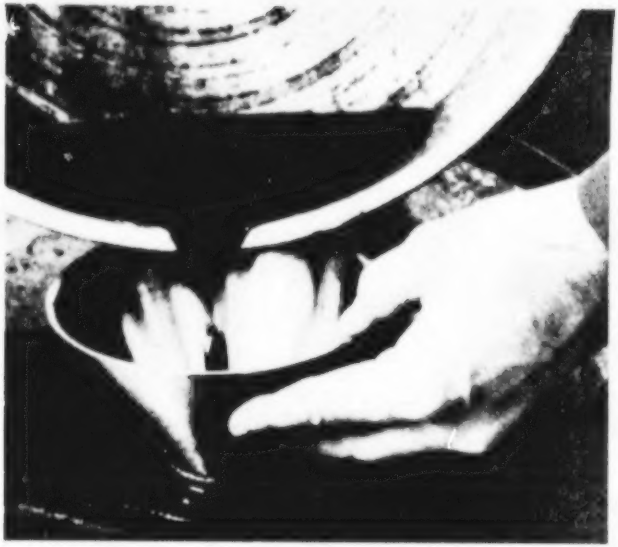


25. Replace the drain plug with your fingers. Then tighten it with the open-end wrench.

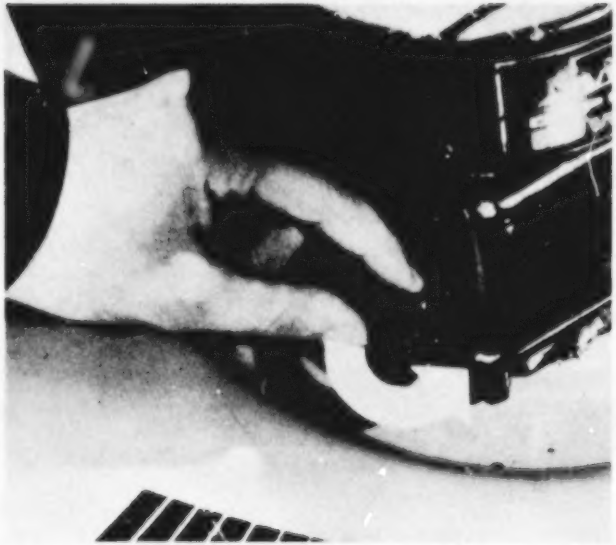
22



26. Look closely at the dirty oil in the drain pan. If the oil has a lot of sludge in it, like this, then the engine may not be in very good condition and may need some other repairs.



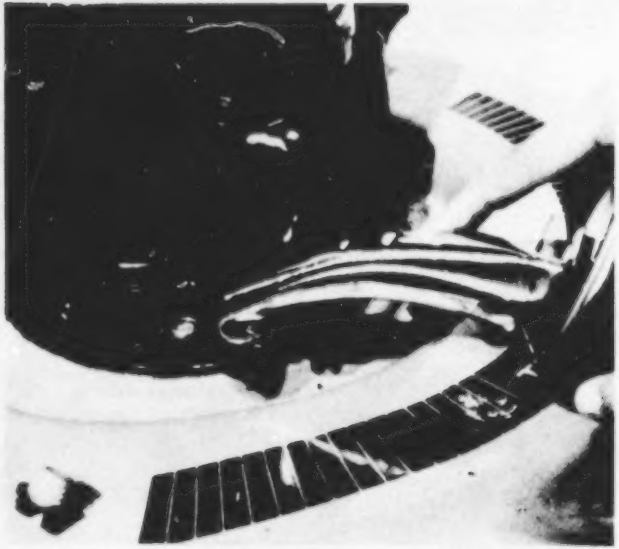
27. Place the funnel in the used oil container. Pour the dirty oil into the funnel and oil container.



28. To put new oil into the crankcase, first remove the oil-fill plug and set it aside.

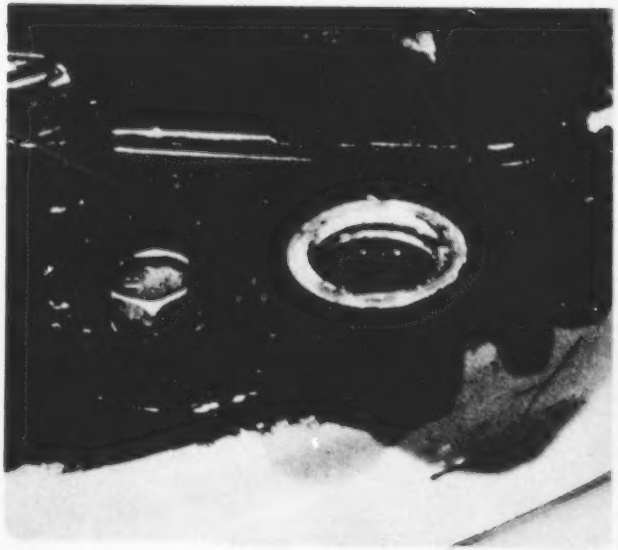
29. Wipe off the tops of the new oil cans and open one of them with an oil spout.

CAUTION: Use the correct type and grade motor oil that is recommended for the engine.

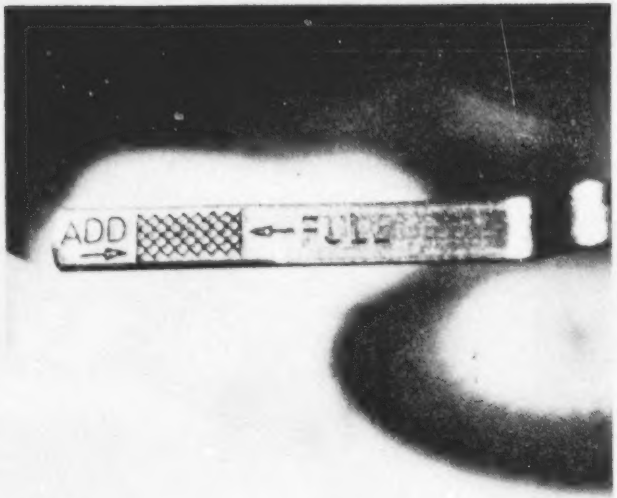


30. Carefully place the oil spout in the fill hole and pour the oil into the hole.

NOTE: You may also use the funnel to help you pour the oil into the crankcase.

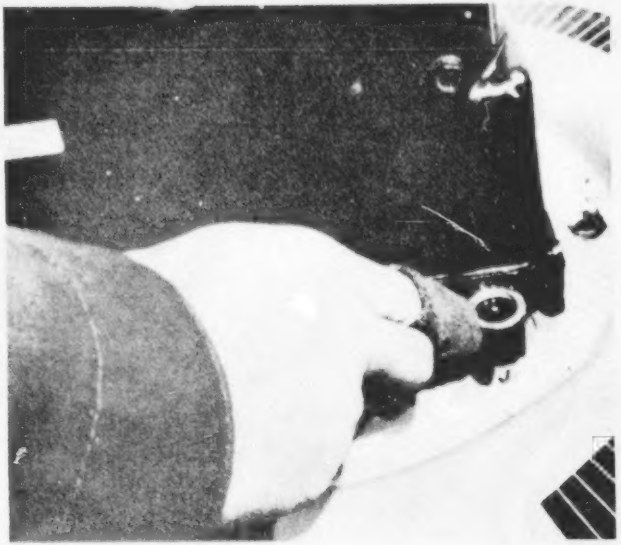


NOTE: Continue putting in new oil until it reaches the top of the fill hole threads. . .

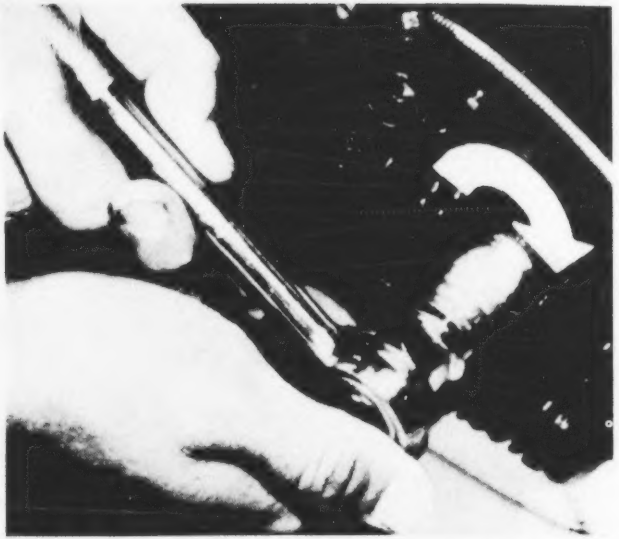


or to the "Full" mark on the dipstick. You may need to open another can of oil and pour some of it into the crankcase.

CAUTION: Do not overfill the crankcase because too much oil could be harmful to the engine.

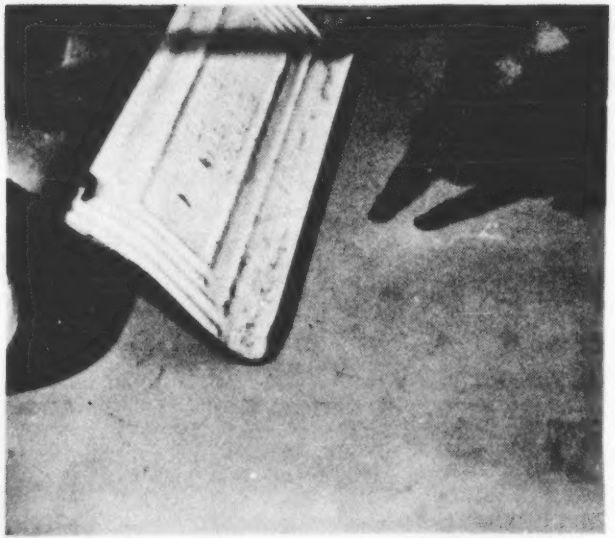


31. Wipe away any oil that spills around the fill hole. Replace the plug snugly in the hole.



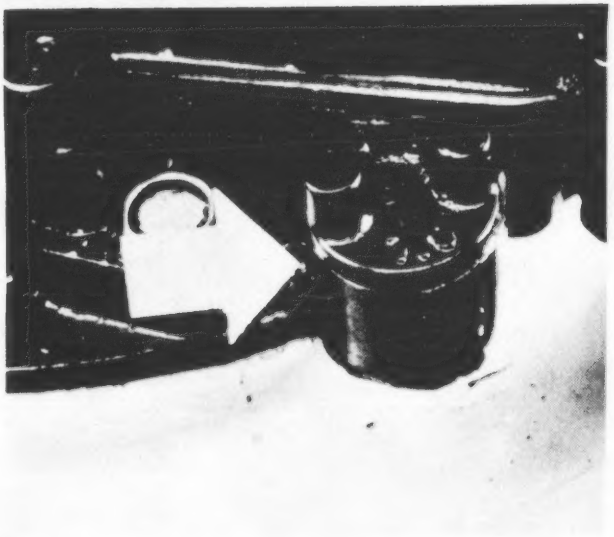
32. Replace the spark plug and spark plug wire.

33. Crank the engine and let it run for a few minutes. This will let the oil settle in the crankcase so that you can get a correct oil level measure.

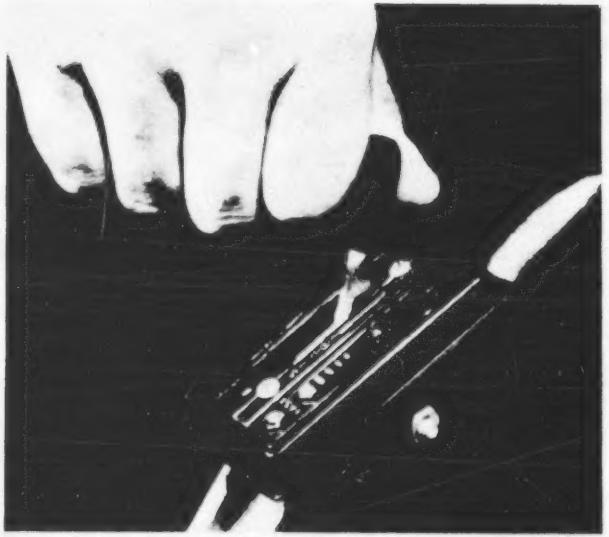


34. To see if any oil is leaking from the drain plug, push the lawnmower forward. Look at the floor for drops of oil.

SAFETY TIP: While the engine is running, do not lift the lawnmower or put your hand under the engine.



35. While the engine is still running, also check for oil leaks around the fill hole.



36. Stop the engine and recheck the oil level.

    NOTE: If the oil is not at the correct level, add more oil, but don't overfill.

37. Clean up your work area when you are through with this job. Clean and replace tools in the tool room and put away dirty shop towels and empty oil cans.

CAN YOU CHECK AND CHANGE THE ENGINE OIL?

Each day practice doing this job and fill in the chart on the next pages. Use a rating number below that describes how well you can do the steps of the job. By the end of 10 days, you will see your progress.

RATING	MEANING
1	– Can do simple parts of this job, but still needs to be shown how to do most of it.
2	– Can do most parts, but may need help on hard parts.
3	– Can do all parts without help. Ready for job entry with shop supervision.

CHART FOR CAN YOU CHECK AND CHANGE THE ENGINE OIL?	DAYS									
	1	2	3	4	5	6	7	8	9	10
1. Assembles and uses tools correctly										
2. Prepares the engine to check the oil (Steps 1-4)										
3. Checks the oil for correct oil level and dirt (Steps 5-11)										
4. Chooses correct type and grade motor oil for the engine (Step 12)										
5. Replaces oil-fill plug, spark plug, and wire; cranks engine and lets oil get hot for draining (Steps 13-17)										

31

CHART FOR CAN YOU CHECK AND CHANGE THE ENGINE OIL?	DAYS									
	1	2	3	4	5	6	7	8	9	10
6. Drains and disposes of dirty oil (Steps 18-27)										
7. Puts correct amount of new oil into engine (Steps 28-32)										
8. Checks for oil leaks around drain plug and fill hole (Steps 33-35)										
9. Rechecks the oil level (Step 36)										
10. Cleans up work area (Step 37)										